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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,810	03/12/2001	Gary L. Nelsestuen	09531-005002	5936

26191 7590 06/02/2003

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EXAMINER	
SCHNIZER, HOLLY G	
ART UNIT	PAPER NUMBER
1653	8

DATE MAILED: 06/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

FILE COPY

Office Action Summary	Application No.	Applicant(s)	
	09/803,810	NELSESTUEN, GARY L.	
	Examiner	Art Unit	
	Holly Schnizer	1653	

-- Th MAILING DATE of this c mmunication appears n the c ver sheet with the c rrespondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23-26,28-33 and 35-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23-26,28-33 and 35-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 March 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Status of the Claims

The Preliminary Amendments filed May 17, 2001(Paper No. 3) and August 21, 2002 (Paper NO. 5) have been entered and considered. Claims 1-22 have been cancelled. Claims 23-45 have been added. Claims 23-45 are pending and have been considered on the merits in this Office Action.

Drawings

The drawings are objected to for the reasons cited on Form PTO 948 attached to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 23-26, 28-33, and 35-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 23-26, 28-33, and 35-45 are indefinite as to what sequences are considered to have substitutions because no reference point has been provided. There is no reference sequence for the amino acid position at which the substitution is made. Without such a reference sequence it cannot be determined when a sequence is considered to have a substitution. For the purposes of this Office Action, the examiner

has considered and searched sequences that have amino acid substitutions at positions 10, 11, 28, 32, and 33 relative to SEQ ID NO:1 (human protein C) or SEQ ID NO:2 (bovine protein C). It is noted that the amino acid numbering in the present Specification refers to the factor IX sequence and that protein C has one less amino acid and must be adjusted accordingly (see p. 8, lines 27-29). Therefore, positions 10, 11, 28, 32, and 33 are the positions that correspond to positions 11, 29, 32, and 34 of the factor IX sequence. Clarification is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 23-26, 29-30, and 40-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Hashimoto et al. (EP 0 354 504, 1990; Ref. AM of IDS filed July 2, 2001 as Paper No. 3).

Hashimoto et al. teach a protein C hybrid polypeptide wherein the Gla domain has been substituted with the Gla domain of bovine protein C (see abstract). The protein C hybrid polypeptide of Hashimoto et al. has a proline at position 10 (rather than a histidine in SEQ ID NO:1 of the present invention), a glycine at position 11 (rather

than a serine in SEQ ID NO:1 of the present invention), and an arginine at position 28 (rather than an arginine in SEQ ID NO:1 of the present invention) (see abstract and Table 1, p. 9). Therefore, the Hashimoto et al. protein C polypeptide contains substitutions at positions 10, 11, and 28 (corresponding to positions 11, 12, and 29 as presently claimed). The compositions of Hashimoto et al. comprising the modified protein C disclosed therein in a buffer (considered a carrier; see p. 7, lines 40-55) are considered patentably indistinguishable from those of present Claims 35-39.

In addition, Hashimoto et al. teaches a nucleic acid molecule encoding the modified protein C described therein and a method of making the protein C polypeptide comprising expressing the isolated nucleic acid molecule encoding the protein in a mammalian host cell (see Examples 1-3, pp. 4-7; reference to expression in Chinese Hamster Ovary (CHO) cells at p. 7, line 27).

Therefore, it appears that Hashimoto et al. meets the limitations of the present claims.

Claims 23-26, 28-33, 35-41, and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwasaki et al. (EP 0 296 413, 1988; Ref. AL of IDS filed July 2, 2001 as Paper No. 3).

Iwasaki et al. teach a human protein C hybrid polypeptide wherein the Gla domain has been substituted with the Gla domain of factor X (see examples 1-3 and Table 6). The Iwasaki et al. protein C hybrid polypeptide has a lysine at position 10 (rather than a histidine in SEQ ID NO:1 of the present invention), a glycine at position

11 (rather than serine of SEQ ID NO:1 of the present invention), an arginine at position 28 (rather than a lysine of SEQ ID NO:1 of the present invention), a glutamate at position 32 (rather than a glutamine in SEQ ID NO:1 of the present invention), and an aspartate at position 33 (rather than an asparagine in SEQ ID NO:1 of the present invention) (see Table 6, p. 16 of Iwasaki et al.). Iwasaki et al. has substitutions at positions 10, 32, and 33 with respect to SEQ ID NO: 2 of the present invention. Therefore, the Iwasaki et al. protein C polypeptide contains substitutions at positions 10, 11, 28, 32, and 33 (corresponding to positions 11, 12, 29, 33, and 34 as presently claimed). The compositions comprising the polypeptides of Iwasaki et al. in a buffer (considered a carrier) (see p. 9, Purification of a hybrid protein C) are considered to be patentably indistinguishable from the compositions of present Claims 35-39.

In addition, Iwasaki et al. teaches a nucleic acid molecule encoding the modified protein C described therein and a method of making the protein C polypeptide comprising expressing the isolated nucleic acid molecule encoding the protein in a mammalian host cell (see Examples 1-4, pp. 7-8; reference to expression in Chinese Hamster Ovary (CHO) cells at p. 8, line 43).

Therefore, the claims are unpatentable over Iwasaki et al.

Claims 23-26, 28-30, 35-39, and 40-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Smirnov et al.

Smirnov et al. teach a protein C chimeric polypeptide wherein the Gla domain has been substituted with the Gla domain of prothrombin. The Gla domain of

prothrombin has a lysine at amino acid position 10 (instead of the His of SEQ ID NO:1 or the Pro of SEQ ID NO:2 of the present invention), a glycine at position 11 (instead of a serine in SEQ ID NO:1), a phenylalanine at amino acid position 28 (instead of a lys of SEQ ID NO:1 or an Arg of SEQ ID NO:2 of the present invention), a gamma carboxyglutamic acid (GLA or Xaa) at position 32 (instead of a glutamine in SEQ ID NO:1 and 2 of the present invention) and a Serine at position 33 (instead of an Asn in SEQ ID NO:1 or 2 of the present invention) (see Smirnov et al. abstract and SEQ ID NO:1 of Smirnov et al. in comparison to SEQ ID NOs: 1 or 2 of the present invention). Therefore, the Smirnov et al. protein C polypeptide contains substitutions at positions 10, 11, 28, 32, and 33 (corresponding to positions 11, 12, 29, 33, and 34 as presently claimed). In addition, Smirnov et al. teaches pharmaceutical compositions comprising the disclosed polypeptides and pharmaceutically acceptable carriers wherein the compositions are formulated for parenteral administration to a human patient (Col. 5, lines 16-30). Smirnov et al. teaches that the pharmaceutical compositions will be useful for treating thrombosis and clot formation (Col. 5, lines 30-65).

Smirnov et al. teach a nucleic acid molecule encoding the modified protein C described therein and a method of making the protein C polypeptide comprising expressing the isolated nucleic acid molecule encoding the protein in human kidney 293 cells (see Example 1, Col. 6, line 15- Col. 7, line 45). Thus, the claims are unpatentable over Smirnov et al.

Conclusion

No Claims are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Schnizer whose telephone number is (703) 305-3722. The examiner can normally be reached on Mon-Wed from 8 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low can be reached on (703) 308-2923. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703 308-0196.

Christopher S. F. Low

CHRISTOPHER S. F. LOW
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

Holly Schnizer
May 28, 2003